

KA78RM33

Low Dropout Voltage Regulator

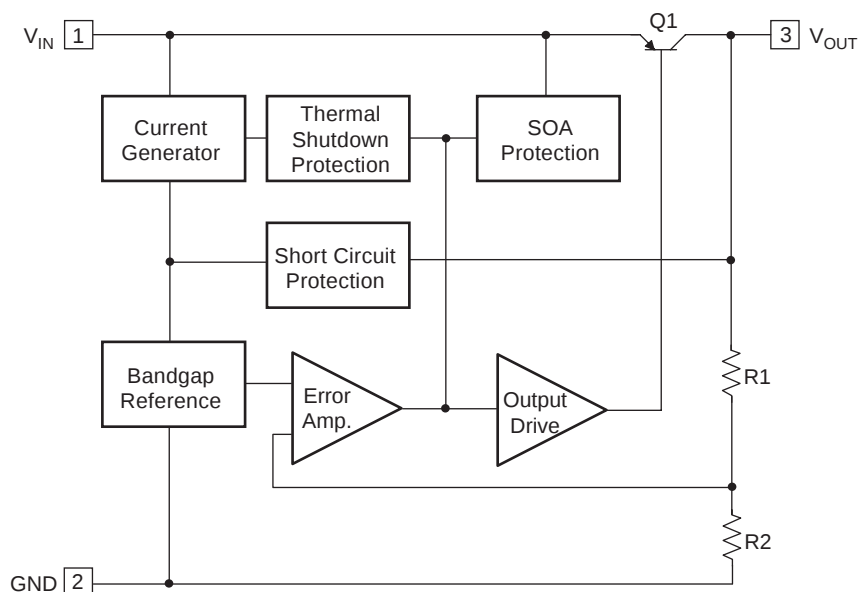
Features

- 0.5A/3.3V Output Low Dropout Voltage Regulator
- Low Dropout Voltage (Max. 0.6V)
- Over Current Protection, Thermal Shutdown
- SOA Protection, Short Circuit Protection

Description

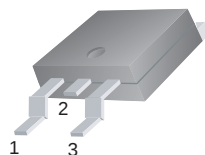
The KA78RM33 is a low-dropout voltage regulator suitable for various electronic equipments. It provides constant voltage power source with surface mount type package (D-PAK). The dropout voltage of KA78RM33 is below 0.6V in full rated current(0.5A). This regulator has various functions such as an over current protection, a thermal shut down and the SOA (Safe operating Area) protection.

Internal Block Diagram

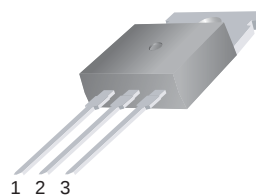


Packages

D-PAK



TO-220



1. V_{IN} 2. GND 3. V_{OUT}

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Remark
Input Voltage	V_{IN}	20	V	—
Output Current	I_O	0.5	A	—
Thermal Resistance Junction-Air	$R_{\theta JA}$	110	°C/W	No Heatsink
Power Dissipation	P_d	Internally limited	—	—
Junction Temperature	T_j	150	°C	—
Operating Temperature	T_{OPR}	-25 to +125	°C	—

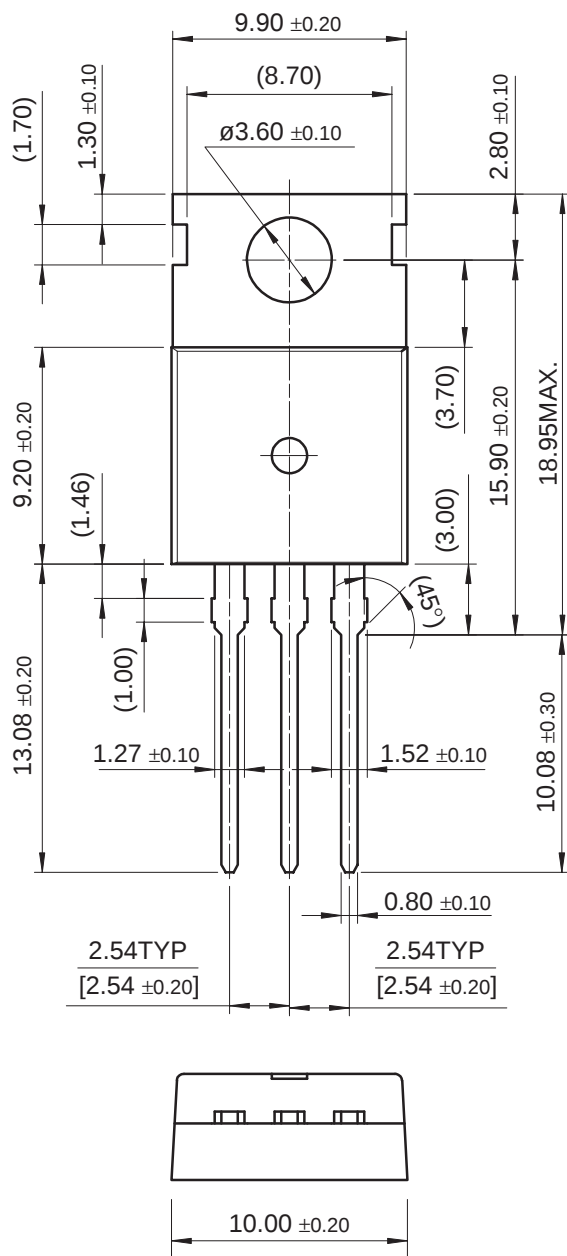
Electrical Characteristics

($V_{IN} = 5V$, $I_O = 0.25A$, $T_A = 25^\circ C$, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_{OUT}	$I_O = 10mA$	3.22	3.3	3.38	V
Load Regulation	R_{LOAD}	$5mA < I_O < 0.5A$	—	2	20	mV
Line Regulation	R_{LINE}	$4.3V < V_{IN} < 16V$	—	2	20	mV
Ripple Rejection Ratio	RR	$f = 120Hz$, $V_{IN} = 5V \pm 0.5V_{rms}$	55	—	—	dB
Dropout Voltage	V_{drop}	$I_O = 0.5A$	—	—	0.6	V
Quiescent Current	I_q	$I_O = 0A$	—	5	10	mA
Peak Current	I_{PK}	$V_{IN} = 5V$	0.5	1	—	A
Output Noise Voltage	V_n	$10Hz < f < 100kHz$	—	50	—	μV_{rms}
Temperature Coefficient of Output Voltage	$\Delta V_{OUT}/\Delta T$	$-25^\circ C < T_j < 125^\circ C$, $I_O = 100mA$	—	-0.2	—	mV/°C

Mechanical Dimensions

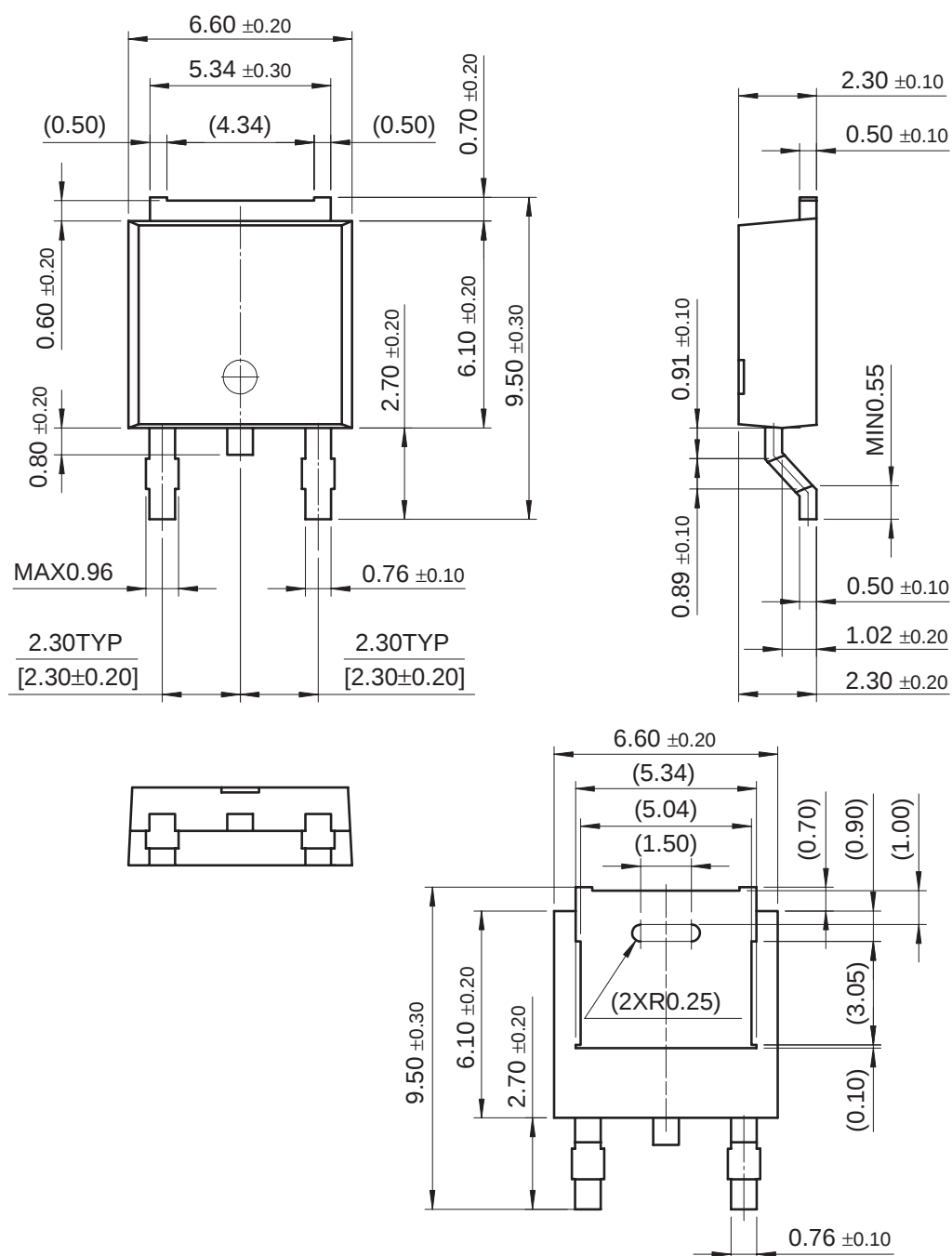
TO-220 Package



Dimensions in millimeters

Mechanical Dimensions (Continued)

D-PAK Package



Dimensions in millimeters

Ordering Information

Product Number	Package	Packing	Operating Temperature
KA78RM33	TO-220	Bulk	-25°C to +125°C
KA78RM33TU		Rail	
KA78RM33TSTU		Rail (Short Leads)	
KA78RM33RTF	D-PAK	Tape & Reel (2K/reel)	
KA78RM33RTM		Tape & Reel (2.5K/reel)	

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